

DESCRIPTION OF THE COURSES

- Course code: ELR1161
- Course title: High Voltage Engineering 1
- Language of the lecturer: Polish

<i>Course form</i>	<i>Lecture</i>	<i>Classes</i>	<i>Laboratory</i>	<i>Project</i>	<i>Seminar</i>
<i>Number of hours/week*</i>	2				
<i>Number of hours/semester*</i>	20				
<i>Form of the course completion</i>	<i>examination</i>				
<i>ECTS credits</i>	4				
<i>Total Student's Workload</i>	<i>120</i>				

- Level of the course (basic/advanced): basic
- Prerequisites: Materials Engineering Fundamentals, High Voltage Engineering 1
- Name, first name and degree of the lecturer/supervisor: Janusz Fleszyński, professor D.Sc., Ph.D, B.Eng.
- Names, first names and degrees of the team's members:
Adam Tymań, Ph.D, B.Eng.
Krystian Chrzan, Ph.D, B.Eng.
Maciej Jaroszewski, Ph.D, B.Eng.
Krzysztof Wieczorek, Ph.D, B.Eng.
- Year:..I..... Semester:.....4.....
- Type of the course (obligatory/optional): obligatory
- Aims of the course (effects of the course):
Acquiring of basic knowledge, which is necessary for HV insulation design skills and maintenance of HV power equipment and installation
- Form of the teaching (traditional/e-learning): traditional
- Course description:
The course presents high voltage engineering problems for electrical power engineering needs point of view Syllabus of lecture includes following items: voltage hazards of insulation of high voltage power devices, electric field in high voltage insulation systems, electric strength of dielectrics, surface discharges, insulation systems of high voltage power devices, lightning and overvoltage protection, insulation coordination.

- Lecture:

<i>Particular lectures contents</i>	<i>Number of hours</i>
<i>1.Introduction, significance of voltage level for power engineering development</i>	<i>1</i>
<i>2. Voltage hazards of insulation, working voltages, overvoltages</i>	<i>2</i>
<i>3.Electric field in insulation systems</i>	<i>2</i>
<i>4.Processes of electric discharges development in gases</i>	<i>2</i>

5. <i>Electric strength of air and SF6</i>	1
6. <i>Surface discharges in air, pollution flashover</i>	2
7. <i>Corona discharges in power transmission lines</i>	1
8. <i>Electric strength of insulating liquids</i>	1
9. <i>Electric strength of solid dielectrics</i>	1
10. <i>Ageing processes in high voltage insulation</i>	1
11. <i>Insulators and power cables</i>	2
12. <i>Insulating systems of power transformers and electric machines</i>	1
13. <i>Devices of lightning and overvoltage protection</i>	2
14. <i>Coordination of insulation in power system</i>	1

- Classes – the contents:
- Seminars – the contents:
- Laboratory – the contents:
- Project – the contents:
- Basic literature:
 1. Z. Flisowski, Technika Wysokich Napięć, WNT, Warszawa, 1998 i wydania następne
 2. Praca zbiorowa, Laboratorium wysokonapięciowe w dydaktyce i elektroenergetyce,
 3. J. Fleszyński (red.), Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław, 1999.
- Additional literature:
 1. Praca zbiorowa po redakcją Z. Pohla, Napowietrzna izolacja wysokonapięciowa, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław, 2003,
 2. Praca zbiorowa po redakcją R. Kosztaluka, Technika badań wysokonapięciowych, t. 1, WNT, Warszawa, 1985,
 3. Praca zbiorowa po redakcją H. Mościckiej-Grzesiak, Inżynieria wysokich napięć w elektroenergetyce, Wydawnictwo Politechniki Poznańskiej, t.1 - 1996, t.2 - 1999.
- Conditions of the course acceptance/creditation: examination passed

* - depending on a system of studies